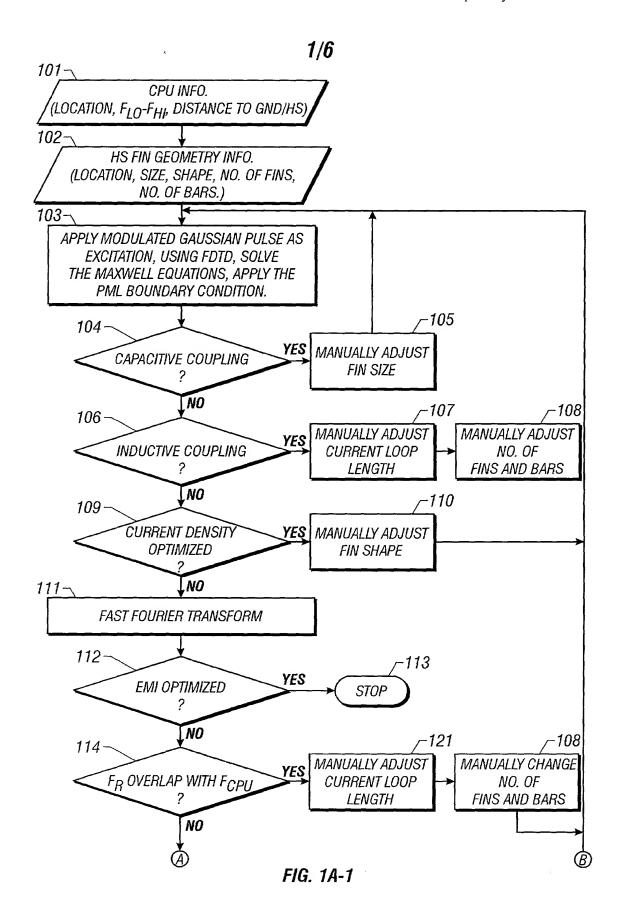
First Inventor: Lan Zhang

Title: Calculation of Radiation Emitted by

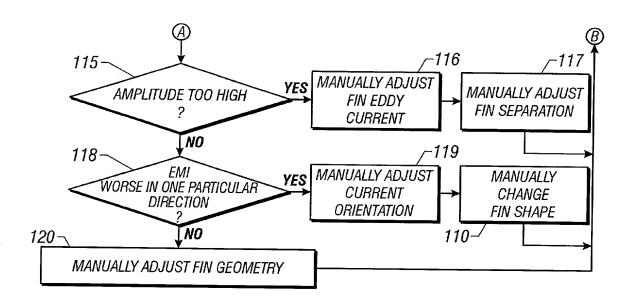
a Computer System



First Inventor: Lan Zhang

Title: Calculation of Radiation Emitted by a Computer System

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HS = HEATSINK

 F_{LO} - F_{HI} = FREQUENCY WINDOW RANGE

F, =RESONANCE FREQUENCY OF THE HEATSINK

PML =PERFECT MATCHED LAYER

FDTD =FINITE DIFFERENCE IN TIME DOMAIN

GND = GROUND

FFT = FAST FOURIER TRANSFORM

FIG. 1A-2

Attorney Docket No.: M-9699 US First Inventor: Lan Zhang Title: Calculation of Radiation Emitted by a Computer System 3/6 101-CPU INFO. (LOCATION, F_{LO}-F_{HI}, DISTANCE TO GND/HS, 102-HS FIN GEOMETRY INFO. (LOCATION, SIZE, SHAPE, NO. OF FINS, NO. OF BARS.) 103-APPLY MODULATED GAUSSIAN PULSE AS EXCITATION, USING FDTD, SOLVE THE MAXWELL EQUATIONS, APPLY THE PML BOUNDARY CONDITION. 111-FAST FOURIER TRANSFORM 112-113 YES EMI ACCEPTABLE **STOP** NO -121 108 114-MANUALLY ADJUST MANUALLY CHANGE YES FR OVERLAP WITH FCPL NO. OF **CURRENT LOOP LENGTH** FINS AND BARS NO 116 115-MANUALLY ADJUST YES MANUALLY ADJUST AMPLITUDE TOO HIGH FIN EDDY FIN SEPARATION **CURRENT** -119 117-NO 118-MANUALLY MANUALLY ADJUST **EMI** YES WORSE IN ONE PARTICULAR **CHANGE CURRENT** DIRECTION **ORIENTATION** FIN SHAPE 110-NO 120 -MANUALLY ADJUST FIN GEOMETRY HS = HEATSINKFLO-FHI = FREQUENCY WINDOW RANGE F, = RESONANCE FREQUENCY OF THE HEATSINK FIG. 1B PML =PERFECT MATCHED LAYER

FDTD = FINITE DIFFERENCE IN TIME DOMAIN

FFT = FAST FOURIER TRANSFORM

GND = GROUND

Attorney Docket No.: M-9699 US
First Inventor: Lan Zhang
Title: Calculation of Radiation Emitted by
a Computer System

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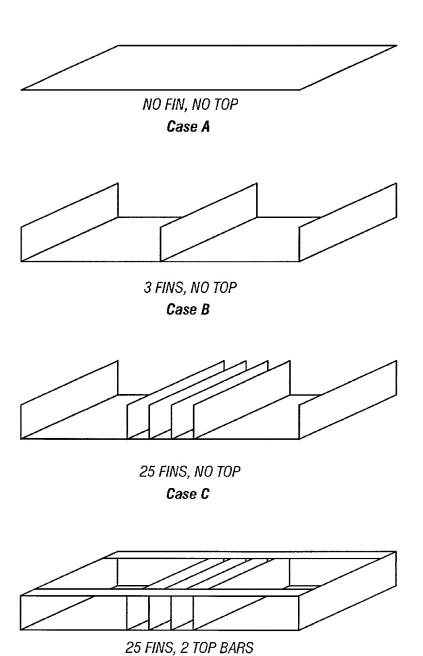


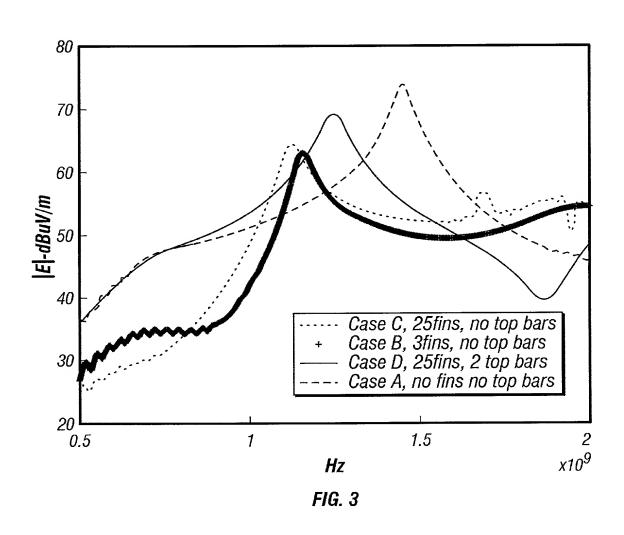
FIG. 2

Case D

First Inventor: Lan Zhang
Title: Calculation of Radiation Emitted by

a Computer System





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